Navy Case No. 79,684
Inventors: KUB ET AL.

PATENT APPLICATION

ABSTRACT OF THE DISCLOSURE

A method for making thin film functional material and thin film single crystal semiconductor devices having a flexible substrate is provided. In one alternative, a film layer of thin film functional material is grown on a large diameter growth substrate. One or more protective layer may be deposited on the surface of the growth substrate before the thin film functional material is deposited. Hydrogen is implanted to a selected depth within the growth substrate [or within a protective layer] to form a hydrogen ion layer. The growth substrate and associated layers are bonded to a second substrate. The layers are split along the hydrogen ion implant and the portion of the growth substrate and associated layers, which is on the side of the ion layer away from the second substrate, is removed. In another alternative, an implanted single crystal semiconductor substrate material is bonded to a flexible substrate. The substrate is split and a thin film of the single crystal semiconductor material remains bonded to the flexible substrate.